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Interview: Scientific Tools Applied within Archaeology and Historical Re-enactment: Dr Gábor Szollosy on the Implementation of Experimental Archaeology in Hungary

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Dr Gábor Szőllősy is an agricultural engineer and councillor museologist at the Museum of Hungarian Agriculture, Budapest. His specialist fields at the Museum are: livestock-farming, livestock registry, carriage vehicles, harnesses, fine arts and the numismatics collection. His

PhD thesis was published in 1995, Experimental examination the mechanical characteristics of divergent types bows. As a historical re-enactor of the 16th – 17th century Ottoman Conquest period, he is currently cultivating a relationship with the Egri Egri Vitézlő Oskola Hagyományőrző és Sport Egyesülettel, with the traditional archery practicing Turkish Tirendaz Association and with the Dobó István Vármúzeuml. He has also served as jury-member on several occasions for the Civil Csillagok initiative, evaluating the authenticity of participating re-enactment associations.

> “There is plenty of qualitative written documentation available on traditional Turkish archery, and there are also thousands of remaining complete bows to study. That is why archery has its long tradition and excellent results of reconstructions.

How do you personally approach the concept of experimental archaeology?

Experimental archaeology - in my opinion - has the main and only aim to find answers to questions where classical archaeological methods fail to find them.

Concerning the appropriate approach: I was lucky to attend a specialized physics-chemistry class in secondary school, and later at Gödöllő University the half year physics education made some things clearer. There I learnt from Professor Karádi the most important principle: what can be measured; what should be measured; what cannot be measured, but that should be in some way be made quantifiable. Scientific-based education improves the understanding of experimental archaeology, but I am not aware of this kind of special education - it might exist.

How consciously is the concept of experimental archaeology interpreted among Hungarian re-enactors and living historians?

It cannot be generalized at this point. The main goal of historical re-enactors is not to research archaeological problems,but to depict authentic (and/or spectacular) characters of a certain period.They only turn to experimental archaeology methods when finding no answers to a detail from specific literature. From this point the following depends on personal preference: to prepare a demanding documentation, evaluating it and publishing the results.

It seems that those groups participating at foreign, historical-topic events meet a high level of presentation andapproach a hair-splitting punctuality, detailing and aiming for maximal scientific thoroughness. Others emphasize the efficiency of combat and battle re-enactment.

How have the achievements of Professor Dr Gyula Fábián[1] *influenced the rebirth of horseback archery? How would you characterize the school Lajos Kassai established: scientific*

experiment, sport or philosophy?

> Fábián's work, building traditional bows, gave practical information and Károly Cs. Sebestyén[2] examined, theoretically, the practicability of the Hungarian Conquest period bows.
>
> For the rebirth of horseback archery, Gyula Fábián laid down the first milestone: three foresters from Visegrád - Antal Koncz, Mihály Ferbert, and András Viszkert - learnt to shoot the bow from horseback expressly for the 1981 film (directed by Orsolya Székely).
>
> Lajos Kassai's activities have nothing to do with experimental archaeology. The Kassai horseback archery, in every aspect in the modern sense, is sport. I am not aware whether Lajos Kassai ever conducted scientific experiments and published results according to the rules of scientific publication. (The same concerning Zsolt Kelemen, although he calls his activities experimental archaeology.)

Attila Magyar calls the method of Emese Park a "way of life reconstruction" intending to research the 10th to 12th century pottery, food preparation and conservation methods empirically. Can we call this method experimental archaeology? How far is this research scientific, or does it depend on the quality of the experiments and documentation?

> Attila Magyar and his team during the appropriately phrased "way of life reconstruction" have discovered plenty of interesting things empirically, but it cannot be considered experimental archaeology, because the results are not gained through previously formulated questions, problems and not through systematically planned experiments. The submission of publications is not executed with scientific precision, despite the goodwill and the endeavour. A few times they have been executed, pre-planned experiments, and the results were published by a historian with a PhD, but the two main requirements of experiment were ignored already by the planning: comparability and repeatability.

Do academics have the same negative attitude towards experimental archaeologists and towards re-enactors practicing experimental archaeology?

> This is depends strongly on the situation. When a graduated archaeologist applies the methods of experimental archaeology, the 'branch' is more permissive, than in the case of an outsider, solving a long-standing (considered unsolvable) problem.

In my experience, the social stratum involved in experimental archaeology is similar to historical re-enactors, it is composed mostly 'amateurs' and graduated archaeologists. Do you think that experimental archaeology is facing the same dilemma as re-enactment: drawing a line between the scientific approach and between the hobbyist methods?

The boundary has existed for a long while. Since several centuries of researching natural sciences: experiments are planned and conducted according to exact formulas. Unfortunately, most of the people graduated as a Bachelor of Arts have no practical/ theoretical knowledge concerning these rules, nor do they follow these procedures during their research. On the other hand, all manner of amateur self-appointed, candidate 'prehistorians' misuse the notion of 'experimental archaeology' in an indecent and impudent fashion. The written media significantly support these theories.

Which role can archaeological open-air museums/parks play in practicing experimental archaeology?

When the conditions are guaranteed (technically and with the correct approach), then archaeological open-air museums/parks may be the ideal location for carrying out divergent experiments.

How would you characterize experimental archaeology: a supplement of the 'official' archaeology or an independent discipline?

In my opinion experimental archaeology is an integral part of the science of archaeology, namely it deals with answering archaeological dilemmas. But by no means would I consider it as an independent discipline.

During your experimental archaeology educational activity do you introduce the scientific methods described by Peter J. Reynolds[3] *, and are you recommending the most adequate method applicable for the specific research topic?*

An experiment is scientific when, during the planning and processing the specific experiment, natural science methods are applied (reasonably applied in relationship to archaeology) and the results are accurately and expertly documented. The academic, scholarly activity of Peter J. Reynolds is exemplary.

During the Szombathely University archaeologist technician training I gave lectures five to six times. It was only possible to mediate the basic knowledge concerning the field.

Most of your experimental archaeological publications deal with the research of the mechanical properties of the Hungarian Conquest period bows, as well as with the comparative analysis with the bows and archery techniques of the nomadic folk groups. As a historical re-enactor, you are interpreting the so-called Ottoman conquest period, the 16th-17th centuries. As an agricultural engineer and museologist of the Museum of Hungarian Agriculture you are a specialist concerning livestock farming, and herewith your work is strongly connected to the knowledge of specific materials. From which side were you the most influenced in the decision to research Hungarian Conquest period bows?

It came from a coincidence. Partly, because I studied zoology at the University of Gödöllő[4] with Professor Gyula Fábián, and in those yearshe organised the Archery Department ofthe University Sports Club, which received from Professor Fábián enormous help (he lent us his own bows to exercise with). During the gatherings he sometimes talked about his experiments and construction work, thus I grew with the subject.

Have you received reactions on your experimental archaeological publications from historical re-enactors, from archaeologists, from your colleges at the museum? Has it triggered positive critiques, debates, or do you run against the wall of 'academics'?

The results of my first independent research I made public during archaeological conferences, and further on in collected essays of these conferences. My archaeologist colleges received it expressly well.

According to them, with the knowledge gains from my presentations, they now see the remains of bows during archaeological excavations with different eyes. They can make practical measurements on the specific findings, which can be feasible for further study.

Does the broader public know of your achievements in experimental archaeology? Young academics often quote your research results in their work. How do you see the contemporary published experimental archaeological results, do they fill the gaps missing from archaeological excavations?

It is not important for me to hear reflections of my results after decades have passed by, because new data possibly modifies our previous knowledge. It is more important to obtain more significancefor science among BA students and among graduated academics. The gaps in knowledge about the past should be investigated and solved with scientific methods, by archaeologists and by historians as well. No one should be a polyhistorian, but they should be able to find a specialist able to give proper answers to proper questions (hypothesizes). Examples for interdisciplinary cooperation exist beside experimental archaeology, also in physics, in chemistry and in biochemistry as well.

Have you ever been asked to advise documentary film makers on Hungary Conquest period bows, or generally on methods of experimental archaeology?

Yes, some cases have occurred. For example, Gábor Szepesi, a cameraman, has chosen the topic of the preparation process of the Hungarian bow for his diploma work.

During a personal conversation, you mentioned that your colleges and your superiors don't really value your experimental archaeological publications in daily work at the museum. Why

do you think it is so difficult to reach recognition for experimental archaeology - researching the practical use of objects - among museologists?

> It is simply so that neither archaeology or experimental archaeology fit into the profile of the Museum for Hungarian Agriculture. The museum is specializes in archaeology concerned with archeobotany and archeozoology. These are not my specialities at the museum.

After more than 30 years of experiments, do you still find unsolved /challenging problems in connection with Hungarian Conquest period bows and archery techniques, and in comparison with the period nomadic folk's archery techniques and bows?

> In the soil the flexible parts of buried bows have vanished. Thus we can gain little information about the measurements of the elastic parts and only lingering, material-intensive, expensive and difficult to manageseries of experiments would give possible extrapolated data. Probably, I won't even start this work. It would be worth repeating the *Őskultúra Alapítvány* (Ancestors Culture Foundation) horn - tendon efficiency/impact investigation experiments - carefully planned and precisely documented. If we want to define the reconstruction data: the capability of the tenth century Hungarians' bow, than we need to produce at least five pieces of the series with the same horn size, with different sizes of flexible handle and repeat the experiment with every horn size. By the humblest counting this means 25 bow reconstructions. The materials are expensive, need plenty of working hours and specific knowledge, and then we only have the basic data. It is limited knowledge about the given type of horn capability with a flexible handle X cm broad and Y cm long.

Docents of the Budapesti Műszaki Főiskola Bánki Donát Gépészmérnöki Főiskolai Kar[5] *(Óbuda University, Donát Bánki Faculty of Mechanical and Safety Engineering) - Sándor Horváth, Géza Körtvélyesi, László Legeza, among others - established a laboratory in 1997, and asked your specialized advice with the main aim to measure the physics and mechanical properties of the historical Hungarian bow and disseminate this knowledge. Is their publication,* Statics of the Hungarian Bow*(2005), an elaboration of an experimental archaeological problem, or rather measurement of the mechanical properties of the Hungarian Conquest period bow?*

> They summarised mechanical data from previous publications and processed it further using a computer. So, the docents are trying to make clear the mechanism of the Hungarian Conquest bow for the mechanical engineer students.

Among others, you have a good connection to a Turkish, traditional, archery association - Tirendaz. With your Turkish language knowledge you can directly interpret the collected information. Did you accidentally meet Tirendaz or was it a conscious search for contact? Does the knowledge you share have a direct influence on your activity?

Dr Murat Özveri and I got in contact through the English-language Szabad íjász (Independent Archer) internet forum. Murat and his group were researching, with scientific precision, Ottoman archery, mainly the archery techniques, and its traditions. From them I've learnt to use some of the traditional archery tools, such as the thumbring.

I do have to assert here, for them authenticity and accuracy of wear is secondary. They are mainly busy with reconstruction of archery techniques. Tirendaz is a ground trooper group; in Turkey there are also horseback archers. As far as I know, horseback archery is recently accepted in the Turkish Association of Traditional Sports. Under the umbrella of this association, *dzsirit* (a group sport on horseback) is practiced, not completely as a sport, but as re-enactment.

Did it ever occur to you to compare 16th–17th century Hungarian bows to the same period Turkish bows, and research together it with Tirendaz? Is experimental archaeology a more individual or rather a social activity?

There is plenty of qualitative written documentation available on traditional Turkish archery, and there are also thousands of remaining complete bows to study. That is why archery has its long tradition and excellent results of reconstructions. Just refer to the work of Adam Karopwicz. In contrast to the Hungarian Conquest period, there are less than 50 pieces of (provable) bows remaining; these are in several public collections throughout the country. It isn't promising to research these, because their characteristics show similarity to the period Turkish bows.

Working with a co-author is dependent on the theme. Sometimes everyone gives their results, but other times one brings in material and the other one gives the publication form.

Since the 1980s you have published results of your experimental archaeological research. Do you recognize an approach shift in science-based experiments in the past more than 30 years? Twenty-first century archaeology has to deal with museums 'overloaded with objects', it might be that understanding the people behind the objects has gained more importance, instead the object self? Possibly, historical re-enactment is a way of dealing with taboos when bringing reconstructions of archaeological findings to the public outside museum doors?

'Fetishizing objects' sounds very unpleasant to me. Archaeology passed this approach already with Gyula László.[6] In my opinion, the most important task of museums is still to collect, preserve and document the remaining object from the past, so the 'overload of objects' for me is explicitly advantageous, because it gives the possibility for statistical processing. Museological objects bear information about the function. In this process experiments carried out with reconstructed objects (during combat re-enactment or

during living history activities gained experience), may offer more than purely archaeological data. We should mention that re-enactment may cause significant distortions when compared to the original circumstances.

You are a supporting member of the Nemzeti Íjásszövetség[7] *. What is your opinion on the Association's research work and activity? Is it a forum for discussions of several approach methods and for sharing experience?*

The *Nemzeti Íjászszövetség's* (National Archery Association) founding purpose was, from the beginning, to safeguard free (public) use of bows when the Hungarian Archery Association tried to limit legally the ownership and use of bows, and wanted to give only legal permission for certain fees. Since then the *Nemzeti Íjászszövetség* practice and actively safeguard interests. Among others, the "extremely dangerous instruments to public safety" decree - 175/2003 (X.28) - was modified on their initiative. Thus nowadays only bows ready to shoot fall under the decree.

The association is suffering under organizational problems, but it gathers those bow makers who know, at the moment, much more about composite reflex bows than I do.

Regarding the countless presented studies (with or without the need for scientific accuracy) of the Hungarian Conquest period bows, for the outsider it seems that archery - as a significant element of ancestral history - attracts the masses. Assumedly, a high percentage of the active archers are considering the revival of Hungarian Conquest period archery as a sport. How can you characterize traditional archery practice?

It must be a clear separation between traditional archery, as a competitive sport ('tradis'-archery), and the research and archery interpretation that endeavour towards authenticity. For contests there are minimal requirements concerning equipment, and no requirements at all regarding what competitors wear. It is sufficient to wear a mounted (stamped) belt and a cap, further participants can appear in *Kalocsa*[8] embroidered blouse or in a camouflage shirt. Consequently, here is offered a broad field for political manipulations, the 'hun-magyar' romanticism, *Lord of the Rings* and further fantasy subjects as well.

Traditional archery is basically a contest, because the contest rules are the same as any other sort of archery, such as in Olympic, in field archery, in 3D, etc., entry fees must be paid by participants and only shooting results decide the ranking. Besides, archers of certain groups perform shows independently.

In your opinion - do the experiments of the Nemzeti Íjászszövetség' members trigger the separation of sport and experimental archaeology, or can both be practiced, with the rules and limitations being set?

Limits/rules should be settled and conclusions should be made, but not purely in theory, but in categories of competitions and in the technical inspection of equipment as well. Unfortunately, there is no brave competition organizer who would dare to disqualify competitors appearing in non-authentic wear and would instruct them to the 'civil' category.

The Downpour of Arrows event at Ópusztaszer National Heritage Park is organised by Attila Magyar. Does it, in your opinion, offer the possibility to disseminate scientific-based research results and theories or is it a meeting for re-enactors without any purpose other than to achieve more authentic equipment, techniques and archer wear?

The Downpour of Arrows is a party, no more. Attila Magyar is /was demanding to introduce authentic appearance and technique, but the undemanding, scrappy equipment simply dominates the authentic minority. The archaeologically-accurate reconstructed yurts and re-enactors with the same authentic intention are lost in the mass.

In classical archaeology, and in experimental archaeology, is the knowledge gained through research using the scientific method even important?

I believe, in regards to this question, we can't make a generalized conclusion. When an archaeologist faces a problem that can be solved through racemization of amino acids, then the researcher has to deepen into the topic to be able to formulate questions for the specialist, execute the certain experiment, and to be able to analyse the results of experiments later on.

Consequently, people who are involved in experimental archaeology are more often confronted with problems that can be solved by a scientific approach, but at this point we can't generalize for all experiments. Sometimes, it is enough when the experimental archaeologist can use a stopper. In my opinion, similarly to scientific research, it is important to gain knowledge for methodology of experiments to the depths.

1 Dr. Gyula Fábián (1915 – 1985) Zoologist, hunter, experimental archeologist, pioneer of the Hungarian field archery. He has built the first steppe composite bow in 1933.

2 Károly Cs. Sebestyén (1876 – 1956) ethnographer

3 Experimental Archeology: A Perspective for the Future, Dr Peter J. Reynolds, The Reuvens Lecture 5, Stichting voor de Nederlandse Archeologie, 1994.

4 Gödöllői Agrártudományi Egyetem, since 2000 Szent István Egyetem www.szie.hu/

5 http://www.bgk.uni-obuda.hu/ Óbuda University, Donát Bánki Faculty of Mechanical and Safety Engineering

6 Gyula László (1910 – 1998) Hungarian historian, archeologist, artist, and university professor.

7 Nemzeti Íjászszövetség (National Archery Association) http://ijasznemzet.hu/

8 Embroidery specific to the city of Kalocsa and surroundings

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FIG 1. DURING THE 1552 SIEGE RE-ENACTMENT OF EGER, GÁBOR SZŐLLŐSY PLAYING THE ROLE OF BUDA GOVERNOR ALI PASHA.

FIG 2. MEASURING THE POWER OF A BOW WITH MANUAL POWER METER.

FIG 3. AMONG THE PARTICIPANTS OF THE 2013 GREY CATTLE FESTIVITIES WEARING XVII.CENTURY CATTLEMAN CLOTHES. COPYRIGHTS HTTP://SZURKEMARHAVIGADALOM.HU

FIG 4. MEASUREMENTS WITH GÉZA KÖRTVÉLYESI AT THE BÁNKI DONÁT UNIVERSITY IN 2003 BY PREPARING FOR THE PRESENTATION OF THE HADAK ÚTJÁN SERIES OF CONFERENCES.

FIG 5. WEARING XVII.CENTURY NOBLEMAN (SMALLHOLDER) CLOTHS.

FIG 6. PUFFING A MEERSCHAUM PIPE AT THE HUNGARIAN MUSEUM OF AGRICULTURE IN XVII.CENTURY NOBLEMAN (SMALLHOLDER) CLOTHES.. COPYRIGHT: MÁRTA POCZA

FIG 7. AUDIENCIA DURING THE REMEMBRANCE OF THE SECOND EGER SIEGE PERFORMING A SHORT SCENE WRITTEN BY MARK WALLIS: III. MEHMET SULTAN RECEIVING ON AUDIENCE EDWARD BARTON BRITISH AMBASSADOR.